Journal of Catalysis

EDITORS:
W. Keith Hall
Frank S. Stone

EDITORIAL BOARD:
R. B. Anderson
M. Boudart
J. B. Butt
A. Cimino
B. Delmon
R. P. Eischens
P. C. Gravelle
J. Haber
C. Kemball
G. W. Keulks
H. Knözinger
J. H. Lunsford
A. Nielsen
J. F. Roth
W. M. H. Sachtler
P. W. Selwood
G. V. Smith
K. Tamaru
S. J. Thomson
P. B. Weisz

Volume 63 • 1980

ACADEMIC PRESS

A Subsidiary of Harcourt Brace Jovanovich, Publishers

New York London Toronto Sydney San Francisco

Copyright © 1980 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated, per copy fee through the Copyright Clearance Center, Inc. (21 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for creating new collective works, or for resale. Copy fees for pre-1980 articles are the same as those shown for current articles.

MADE IN THE UNITED STATES OF AMERICA

Contents of Volume 63

Number 1, May 1980

HIROO NIIYAMA, KAZUHISA MURATA, H. V. CAN, AND ETSURO ECHIGOYA. Role of Surface Oxygen in the Reaction of NO with NH_3 over Chromia Catalyst 1

HAROLD H. KUNG AND ROBERT L. BURWELL, JR. Effect of Steric Strains upon the Hydrogenation of Olefins and Acetylenes on Pd/SiO_2 and Pt/SiO_2 11

G. B. MCVICKER AND M. A. VANNICE. The Preparation, Characterization, and Use of Supported Potassium-Group VIII Metal Complexes as Catalysts for CO Hydrogenation 25

MASAHARU KOMIYAMA, ROBERT P. MERRILL, AND H. F. HARNSBERGER. Concentration Profiles in Impregnation of Porous Catalysts: Nickel on Alumina 35

KATHLEEN C. TAYLOR AND JAMES C. SCHLATTER. Selective Reduction of Nitric Oxide over Noble Metals 53

Z. DUDZIK AND Z. M. GEORGE. Electron Donor Properties of Claus Catalysts. I. Influence of NaOH on the Catalytic Activity of Silica Gel 72

T. VAN HERWIJNEN AND W. A. DE JONG. Kinetics and Mechanism of the CO Shift on Cu/ZnO. I. Kinetics of the Forward and Reverse CO Shift Reactions 83

T. VAN HERWIJNEN, R. T. GUCZALSKI, AND W. A. DE JONG. Kinetics and Mechanism of the CO Shift on Cu/ZnO. II. Kinetics of the Decomposition of Formic Acid 94

SHOUSUKE TERATANI, YUZURU TAKAGI, KAZUNORI TANAKA, AND YOSHIAKI MURAMATSU. Deuteration of 4-t-Butyl-1-cyclohexenyl Methyl Ether Catalyzed by Platinum Metals: Evidence for Staggered $\alpha\beta$-Diadsorbed Intermediates ... 102

P. BILOEN, J. N. HELLE, H. VERBEEK, F. M. DAUTZENBERG, AND W. M. H. SACHTLER. The Role of Rhenium and Sulfur in Platinum-Based Hydrocarbon-Conversion Catalysts 112

F. M. DAUTZENBERG, J. N. HELLE, P. BILOEN, AND W. M. H. SACHTLER. Conversion of *n*-Hexane over Monofunctional Supported and Unsupported PtSn Catalysts 119

HONG H. LEE. Kinetics of Sintering of Supported Metal Catalysts: The Mechanism of Atom Diffusion 129

H. FRANK LEACH, CLAUDE MIRODATOS, AND DAVID A. WHAN. The Exchange of Methane, Ethane, and Propane with Deuterium on Silica-Supported Nickel Catalyst 138

I. MATSUURA, R. SCHUT, AND K. HIRAKAWA. The Surface Structure of the Active Bismuth Molybdate Catalyst 152

H. GLASSL, R. KRAMER, AND K. HAYEK. Electron Microscopy of Pt/Al_2O_3 Model Catalysts: Artifacts in Sample Preparation 167

Z. OTERO-SCHIPPER, J. LIETO, AND B. C. GATES. Ethylene Hydrogenation Catalyzed by Polymer-Bound Tetraruthenium Clusters 175

JOSÉ LUIS SEOANE, PIERRE BOUTRY, AND ROGER MONTARNAL. Ethylene Oxidation to Acetic Acid with $Pd–V_2O_5$ Type Catalysts. I. Gas–Solid Reactions 182

JOSE LUIS SEOANE, PIERRE BOUTRY, AND ROGER MONTARNAL. Ethylene Oxidation to Acetic Acid with $Pd–V_2O_5$ Catalysts. II. Kinetics of the Catalytic Reaction 191

P. GAJARDO, P. GRANGE, AND B. DELMON. Structure of Oxide CoMo/λ-Al_2O_3 Hydrodesulfurization Catalysts: An XPS and DRS Study 201
F. SOLYMOSI AND J. RASKÓ. An Infrared Study on the Formation of Isocyanate in the NO + CO Reaction on Supported Ir Catalyst 217
D. W. GOODMAN, R. D. KELLEY, T. E. MADEY, AND J. T. YATES, JR. Kinetics of the Hydrogenation of CO over a Single Crystal Nickel Catalyst 226
JAMES D. BURRINGTON, CRAIG T. KARTISEK, AND ROBERT K. GRASSELLI. Aspects of Selective Oxidation and Ammoxidation Mechanisms over Bismuth Molybdate Catalysts. II. Allyl Alcohol as a Probe for the Allylic Intermediate 235

NOTES

M. A. VANNICE AND R. L. GARTEN. The Influence of the Support on the Catalytic Behavior of Ruthenium in CO/H_2 Synthesis Reactions 255
HO-IN LEE AND J. M. WHITE. Carbon Monoxide Oxidation Over Ru (001)... 261
M. M. J. TREACY AND A. HOWIE. Contrast Effects in the Transmission Electron Microscopy of Supported Crystalline Catalyst Particles 265

Number 2, June 1980

R. K. SHARMA, K. N. RAI, AND R. D. SRIVASTAVA. V_2O_5–K_2SO_4–Silica System: The Structure and Activity of Silica-Supported V_2O_5–K_2SO_4 Catalysts 271
FARHAD BEHBAHANY, Z. SHEIKHREZAI, M. DJALALI, AND S. SLAJEGHEH. Exchange and Desulfurization of Thiophene over Synthetic and Commercial Co/Mo Catalyst Systems 285
W. T. REICHLE. Pulse Microreactor Examination of the Vapor-Phase Aldol Condensation of Acetone 295
J. L. PORTEFAIX, F. FIGUÉRAS, AND M. FORISSIER. Mechanism of 1, 1-d_2 Propene Oxidation over Oxide Catalysts..... 307
ZBIGNIEW KARPIŃSKI AND TOMASZ KOŚCIELSKI. Catalytic Reactions of Hydrocarbons over Pt–Pd Alloys. III. Skeletal Reactions of *n*-Pentane and *n*-Hexane over Pt–Pd/SiO_2 313
LAURENCE D. NEFF, ALTON E. STURDIVANT, AND JOE L. WALLACE. Desorption of Carbon Monoxide from Nickel Using Mercaptans 324
PIERRE DEJAIFVE, JACQUES C. VÉDRINE, VERA BOLIS, AND ERIC G. DEROUANE. Reaction Pathways for the Conversion of Methanol and Olefins on H-ZSM-5 Zeolite..... 331
H. A. FRANCO AND M. J. PHILLIPS. Gas Phase Hydrogenation of Benzene on Supported Nickel Catalyst 346
K. KLOSTERMANN AND H. HOBERT. Reactions of Sulphur Compounds on Silica-Supported Nickel 355
M. BARTÓK, F. NOTHEISZ, AND Á. G. ZSIGMOND. Stereochemistry of Heterogeneous Catalytic Hydrogenolysis and Isomerization of Oxiranes..... 364
C. A. COOPER, R. L. MCCULLOUGH, B. C. GATES, AND J. C. SEFERIS. Structure–Property Relations of Solid Polymeric Catalysts: Isopropyl Alcohol Dehydration in Semicrystalline, Sulfonated Polyethylene-Grafted Styrene..... 372
DADY B. DADYBURJOR AND ELI RUCKENSTEIN. Activation Energies to Characterize Ease of Removal of Various Kinds of Oxygen from Bismuth Molybdate 382

H. C. de Jongste and V. Ponec. Role of Cu in the Hydrogenolysis of Pentane on Cu Alloy Catalysts 389
H. C. de Jongste, V. Ponec, and F. G. Gault. Influence of Alloying Pt with Cu on the Reaction Mechanisms of Hydrocarbon Reforming Reactions..... 395
E. E. Unmuth, L. H. Schwartz, and J. B. Butt. Iron Alloy Fischer–Tropsch Catalysts. II. Carburization Studies of the Fe–Ni System..... 404
J. Schwank, S. Galvagno, and G. Parravano. Isotropic Oxygen Exchange on Supported Ru and Au Catalysts 415
Yen-Shin Shyr and William R. Ernst. Preparation of Nonuniformly Active Catalysts..... 425
S. Karuppannasamy, K. Narayanan, and C. N. Pillai. Reactions of Phenols and Alcohols over Thoria 433
M. Saito and R. B. Anderson. The Activity of Several Molybdenum Compounds for the Methanation of CO 438
Akio Kazusaka and Russell F. Howe. Interaction of Nitric Oxide with Supported Chromium, Molybdenum, and Tungsten Catalysts 447
J. A. Anabtawi, R. S. Mann, and K. C. Khulbe. Hydrogenation of Pyridine over Ni–W/Al_2O_3 Catalyst..... 456
Robert G. Bowman and Robert L. Burwell, Jr. The Reaction between Hydrogen and Carbon Monoxide on Catalysts Derived from $Mo(CO)_6/Al_2O_3$ 463
R. B. Greegor and F. W. Lytle. Morphology of Supported Metal Clusters: Determination by EXAFS and Chemisorption..... 476
R. M. Kroeker, W. C. Kaska, and P. K. Hansma. Sulfur Modifies the Chemisorption of Carbon Monoxide on Rhodium/Alumina Model Catalysts..... 487

Notes

L. Červený, A. Marhoul, K. Červinka, and V. Růžička. Determination of the Distribution of the Active Component and the Activity of Supported Palladium Catalysts 491
S. Attali, B. Vigouroux, M. Lenzi, and J. Pescia. Determination of the Active Center in Calcium–Nickel Phosphate Dehydrogenation Catalyst 496
I. Kiricsi, I. Hannus, K. Varga, and P. Fejes. Reactions of Cyclopropane over Zeolite Catalysts 501
Tsong-Jen Yang and Jack H. Lunsford. The Role of O^- Ions in the Oxidative Dehydrogenation of Ethane over Molybdenum Oxide Supported on Silica Gel 505
R. A. Rajadhyaksha and J. R. Anderson. Activation of ZSM-5 Catalysts 510
S. J. Tauster, T. A. Pecoraro, and R. R. Chianelli. Structure and Properties of Molybdenum Sulfide: Correlation of O_2 Chemisorption with Hydrodesulfurization Activity 515

Letters to the Editors

José Goldwasser and W. Keith Hall. The Mechanism of Isomerization of 1-Butene over La_2O_3 520
R. T. K. Baker. Effect of Wetting on the Morphology of Supported Platinum Crystallites..... 523

Author Index for Volume 63..... 526

The Subject Index for Volume 63 will appear in the December 1980 issue as part of a cumulative index for the year 1980.